

Castlemaine Naturalist

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Little Bittern *Ixobrychus minutus*
- Photo by Debbie Worland

Dr Mary Cole on Gardening to Protect the Environment

Dr Mary Cole has spent her professional life trying to convey the importance of soil in a healthy environment. She believes looking after the soil, understanding natural ecosystems and the use of organic and biodynamic agricultural techniques is the way we must all go eventually.

Early Australians were nomadic and moved constantly in search of food. After settlement people began to establish permanent communities and farm in a way that resulted in overuse of the land and depletion of the soil. We have used European farming practices (developed in countries where there is lots of soil) that are not suited to our conditions in Australia (where the land is very old and often with very little soil). In Australia we need to farm in a way that increases the amount of soil.

Increased use of and reliance on chemicals is now known to be toxic to the biota in the soil. Agricultural use of tonnes of superphosphate has resulted in acid soils where all the biota in the soil has been destroyed and a regime of dependence on expensive chemical fertilizers established in order to provide nutrients to the soil and maintain yields.

Dr Cole gave the example of a potato farmer who couldn't understand why his crop yields were deteriorating. He came to her for advice and she told him that his farming practices of overuse and use of herbicides and chemical fertilizers that were killing the microbes in the soil were causing depletion of nutrients in his soil. She advised him to start by growing a legume crop/ pasture crop to restore nutrients to the soil and helped him to change the way he looked at his soil - as a valued resource to be nurtured rather than plundered.

If, rather than burning the stubble to prevent infection of the following years crop, the cellulose of the stubble was decomposed back into the soil it would be making more soil each year and predatory micro-organisms in the soil would destroy pathogenic organisms. By returning nutrients to the soil there are no CO₂ emissions, micro-organisms remain active, oxygen is increased, earthworms

are active, soil temperature is increased, there is a decrease in pest activity and there is no cost.

It is very important that soil biota are kept as active as possible for life to go on. Life on earth depends on recycling and the ability of the soil's biota (fungi, bacteria, actinobacteria, invertebrates, algae and protists) to recycle nutrients and yet soil biota are often forgotten when environmental communities are discussed. You see them as fungi when it rains and smell them in "musty" good soil - otherwise they are hidden. The top 10 cm of good soil contains per ha: 250 gm bacteria, 200 gm fungi and 30 kg actinobacteria.

We have to accept that we are going into a period of dry and therefore have to use our limited supplies of water more efficiently. Increase in organic matter helps protect the capacity of the soil to hold water. As the percentage of organic matter in the soil is increased, so the sequestration is increased, saving water needed to get productivity.

Another important but largely invisible component of healthy soil is Mycorrhizae. Mycorrhizae is a fungi that grows in association with the roots of a plant in a symbiotic or mildly pathogenic relationship. It occurs in several soils and on nearly all plants.

In Australia where soil is old, leached and depleted, Mycorrhizae provide an extra symbiotic root system for plants and are often species specific. A plant's natural habitat is contained by the amount of water and nutrients available to it and Mycorrhizae is like a secondary root system that goes out further than the root system to gather more phosphorous. (You can demonstrate presence of Mycorrhizae on pine roots, clover, native pea plants etc. by placing sections of root in black ink).

Other ways to improve a garden include -

- "Compost tea" made from dry cow dung pats (1/3 dung, 2/3 water, plus Charlie carp/ seafood: 10-15 mls concentrated liquid manure to 100 litres water - spray 1000 sq m - diluted and added to garden will double the root system for free in 10 days. You can also spray onto leaves to protect against disease.
- Companion planting
- Understanding a plant's preference for high pH and low pH and group accordingly when planting
- Good garden hygiene - remove and compost diseased leaves
- Mulch, mulch, mulch
- Water saving - use indigenous species
- Garden must be attractive to birds and animals and be useful
- Gardens must provide peace and tranquillity

We must change our ideas of ownership to that of custodians of the land. Soil is a finite source - we must value and care for the soil if our grandchildren are to inherit land that has good productive capacity.

- Geraldine Harris (from notes taken on the evening of the talk)

You can't win!

Tony Morton

Members may remember the trip to Horsham and Colignan in search of two elusive 'Blue' butterflies and how we were too late to find anything at all. I am sure you were all concerned at our failure and very anxious to know how things are progressing. This time, I have better news for you! By the way, in the meantime we had both planted many dollars' worth of *Myoporum parvifolium* in our gardens in the hope of attracting our own 'Rayed Blues', Golden or not!

Well! This year we set out in about mid-October to be sure we hadn't missed the 'Golden-rayed Blues' flying. And sure enough, in Horsham, near the Botanic Gardens, there were dozens of the butterfly around the *Myoporum*, some rather worn, suggesting that even now we could have been earlier, say, in the first week of the month. All were flying close to the ground over the creeping plant, never straying far from it, especially the females, though the males would sometimes sit on the bare ground nearby, or indulge in a whirling tussle with a rival. We congratulated ourselves, caught a few, and moved on. We had a look in the car-park of the Red Rooster but didn't see any more. By the way, I cannot recommend this outlet, gastronomically speaking, I am afraid.

At the locality near Colignan (a gravel road which runs between Hattah Lakes National Park and some vineyards), we went to the old fence-line in the sparse Mallee woodland and immediately roused up a couple of males of the 'Mildura Ogyris' we had failed to find the previous year. They were sitting on a dry twig, remarkably well camouflaged. They fly very fast indeed, never very high, and seldom settle, so are extremely hard to net. At about midday, the females began to appear. They are easily distinguished from the males, having a large creamy splotch on each fore-wing. They had a quietening effect on the males, which stopped showing off and started taking a polite interest in the opposite sex. As they were thus occupied, we were able to catch a pair each. They too were slightly worn, suggesting that they had been on the wing for a week or so. At about two p.m. they all disappeared and, having looked around for some other areas that might be promising for future visits, we began our run home.

So, it was a successful outing. We had timed it right this time!

So, what about all the *Myoporum parvifolium* we had planted in our gardens to attract the insect? I think that last year I exhorted all of you to plant a lot of it too. Well, please plant a lot of *Derwentia perfoliata* as well. On our return we did see quite a few 'Rayed Blues' in my friend's garden (and also on Jacob's Track), but here in the Goldfields this species ignores *Myoporum* completely and prefers

Digger's Speedwell!

Paddock trees in peril

Chris Morris

Australia's south-east temperate grazing zones could be virtually treeless within a matter of years, according to research recently published and reported on by CSIRO.

The research team concluded that most of the trees scattered across millions of hectares of temperate grazing land in New South Wales and Victoria are old and close to death. Existing land management practices have prevented regeneration of young trees to replace them.

The study pointed out that disappearance of paddock trees would lead to loss of shelter for livestock, also loss of habitat for birds, native flora and wildlife.

Flowering plants seen on Fryers Ridge

Richard Piesse

on 2nd November:

Arthropodium strictum Chocolate Lily, *Bulbine bulbosa* Bulbine Lily
Burchardia umbellata Milkmaids, *Dianella admixta* Black-anther Flax Lily,
Thysanotus patersonii Twining Fringe Lily, *Caladenia cucullata* Hood Orchid,
C. gracilis Musky Hood Orchid, ***C. iridescens* Western Bronzewood,***
C. dilatata Greencomb Spider Orchid,** *Calochilus robertsonii* Purple Beard
Orchid, *Glossodia major* Wax-lip Orchid, *Thelymitra pauciflora* Slender Sun
Orchid, *Lomandra filiformis* Wattle Mat-rush, *Craspedia variabilis* Billy Buttons,
Helichrysum scorpiodes Button Everlasting, *Leptorhynchus squamatus* Scaly
Buttons, *Microseris* sp Yam Daisy, *Ozothamnus obcordatus* Grey Everlasting,
Xerochrysum viscosum Sticky Everlasting, *Wahlenbergia stricta* Tall Bluebell,
Hibbertia fasciculata Bundled Guinea Flower, *Drosera peltata* ssp *auriculata* Tall
Sundew, *Brachyloma daphnoides* Daphne Heath, *Epacris impressa* Common
Heath, *Leucopogon ericoides* Pink Beard Heath, *Leucopogon virgatus* Common
Beard Heath, *Monotoca scoparia* Prickly Broom Heath, *Daviesia leptophylla*
Narrow-leaf Bitter Pea, *Dillwynia sericea* Showy Parrot Pea, *Gompholobium*
huegelii Common Wedge Pea, *Platylobium formosum* Handsome Flat Pea,
Pultenea daphnoides Large-Leaf Bush Pea, *Pultenea humilis* Dwarf Bush Pea,
Goodenia blackiana Black's Goodenia, *Acacia aspera* Rough Wattle,
A. paradoxa Hedge Wattle, *A. provincialis* Wirilda, *Eucalyptus dives* Broad-
leaved Peppermint, *Leptospermum myrsinoides* Heath Tea-tree, *Oxalis*
perennans Grassland Wood Sorrel, *Rhytidosporum procumbens* White Marianth,
Comesperma ericinum Heath Milkwort, *Grevillea alpina* Downy Grevillea,
Philotheca verrucosa Fairy Wax-flower, *Stackhousia monogyna* Creamy
Candles, *Pimelea humilis* Common Rice-flower, *Tetratheca ciliata* Pink Bells

And sighted with Rita on Friday 6th :

<i>Microtis unifolia</i>	Common Onion-orchid
<i>Prasophyllum</i> af. <i>pyriforme</i>	Graceful Leek-orchid*
<i>Brunonia australis</i>	Blue Pincushion
<i>Velleia paradoxa</i>	Spur Velleia
<i>Prostanthera denticulata</i>	Rough Mint-bush

** At least 100 Spider Orchids near the Old Fire Tower

**C. iridescens* and *Prasophyllum* are new sightings for the locality

Making local contributions to scientific research as a volunteer – Part 3: Millipede Mayhem

Chris Timewell

Black Portuguese Millipedes (*Ommatoiulus moreleti*) were first detected in Australia near Port Lincoln, S.A. in 1953, and they have since spread across much of southern Australia, including Tasmania. I suspect most Victorians have seen one or more in their garden at some stage, or perhaps lying dead in the house along a window sill. Mature adult Black Portuguese Millipedes are 20-45 mm in length, with between 40 and 50 black body segments. Most segments have two pairs of legs. They have a pointy tail and often coil up like a watch spring when disturbed. Although they are not poisonous and don't generally target agricultural crops, they are seen as a significant pest because of their plague numbers (usually in Autumn and Spring) and their smelly, staining secretions which are used against predators. The extent to which they compete with native millipedes and other invertebrates is uncertain. A couple of years back I was assisting in a search for a threatened lizard to the west of Bendigo, and every one of dozens of rocks we turned over was swarming underneath with these little black beasties.

In 2007, the CSIRO Double Helix club launched the national Millipede Mayhem program to help entomologists map the extent and spread of Black Portuguese Millipedes across Australia. Although the main burst of activity for the program occurred in early 2007, the CSIRO entomologists are still encouraging people to continue to collect specimens. For the Castlemaine backyard biologist, it will involve collecting millipedes in a plastic jar, adding some moist cotton wool or tissue, labelling the jar and taking some other habitat notes, and sending the specimens and notes to Dr Geoff Baker in Canberra. The CSIRO are encouraging the collection of all millipedes found, not just the Black Portuguese variety, as it provides much information on interaction between millipede species, and their distribution.

The full details of the collection method are provided in the following website (<http://www.csiro.au/resources/CollectingMillipedes.html>) with links to other pages on the identification of the Black Portuguese Millipede, the differences between males and females, and identification tips for other millipede species as well.

The findings of the first phase of Black Portuguese Millipede research can be found at the following web-page:

(<http://www.csiro.au/resources/ps2mu.html>) which, in summary, found (a) very little difference in the size and shape of Portuguese Millipedes across the country; and (b) their actual distribution closely corresponded to a predicted map of their distribution that was made in mid-1980s, although they were unexpectedly absent from central-north coast of NSW or south-eastern Queensland. The project has also collected many other millipedes that are yet to be identified, including a native millipede that was quite abundant in the Sydney area.

Observations from Barkers Creek

Geraldine Harris

24/10/09 Peter Olde (who has written several books on Grevilleas with Neil Marriot) with nine other Grevillea enthusiasts came to look at an unusual Grevillea in our bush and deemed it to be a true *Grevillea rosmarinifolia* subsp *glabella* (no hairs on stamens) - only the second they had seen during their day of searching the central Victorian area. The other was at Mandurang.

November - Snakes about!

2/11/09 A neighbour sighted a 5ft Brown Snake which quickly disappeared completely into bark mulch at the base of a large tree that has recently been ring-barked by Galahs.

5/11/09 Days later we noticed a 4ft Red-bellied Black Snake making its way along the house outside the study windows. It was poking its head into the soil in the garden (searching for skink eggs?), it stopped at the pond for a drink and eventually disappeared under the pond.

13/11/09 This morning I saw a small brown snake alongside the garden path and this afternoon a baby Blue-tongue Lizard.

14/11/09 Tiger snake swimming at the water's edge at Golden Point.

20/11/09 Horse died after being bitten by Tiger Snake at Barkers Creek.

8/11/09 Flowers in the bush at Barkers Creek:

Spur Velleia *Velleia paradoxa*, Blue Bell *Wahlenbergia* sp., Native Flax *Linum marginale*, Pink Bindweed *Convolvulus angustissimus*, Chocolate Lily *Arthropodium strictum*, Bulbine lilies *Bulbine bulbosa*, Majenta stork's-bill *Pelargonium rodneyanum*, Creamy Candles *Stackhousia monogyna*, Sticky Everlastings *Xerochrysum viscosum*, Scaly Buttons *Leptorhynchus squamatus*, Austral Bugle *Ajuga australis*, Curved Rice-flower *Pimelea curviflora*, Common Rice-flower *Pimelea humilis*, Sweet Hound's-tongue *Cynoglossum suaveolens*, Blue Pincushions *Brunonia australis*, and lots of lovely native grasses.

15/11/09 Pair of Red-rumped Parrots feeding on grass seeds and Cat's Ears - working thoroughly over an area either pulling down and stepping on the plant or stepping on the base of the plants and then walking out along the stem to the seed head.

19/11/09 Last night was the hottest night in Melbourne for 159 years and today was a total fire ban day. Tonight when I opened up the house and went outside after dinner, I found two dead baby swallows below a nest at the back of the house and three almost fully fledged swallows huddled together on the ground at the front of the house - wonder how they will survive the night but best to let nature alone.

They survived the night and had shifted under a large piece of bark for shelter. They seemed stronger so must still be being fed by the parent bird.

Observations

- ◆ At the November meeting:-
- ◆ Chris Timewell - a pair of Blue-tongue Lizards observed acting out mating rituals
- ◆ George Broadway - report that people pissing on the rock at Uluru is killing the shrimps living in the waterholes at the base of the rock. While moving house recently, he found a file with a preserved ?? shrimp found in water after rain that he had collected many years earlier In the western district - he has not seen them in the Castle-maine district.
- ◆ Geoff Harris - 31/10/09 Black-tailed Native Hens on the back road to Ledcourt near Dadswells Bridge on the Western Highway - first sighted about one hundred birds around a roadside dam and then as we drove further along past the farm there were more and more gathered under sheds, under old farm machinery etc etc – estimated about a thousand birds!
- ◆ According to Chris Morris, when a bird or animal species occurs in large numbers outside its normal range and at irregular intervals like this, it is called an “invasion” or “irruption” of species.
- ◆ Late November:
- ◆ Little Bittern seen at home (cover photo) – Debbie Worland
- ◆ White-winged Triller at home, and a Powerful Owl in the Botanical Gardens – Nigel Harland
- ◆ Yellow-tailed Black Cockatoos lately, and what appeared to be a courting dance (on the road) of a pair of Lapwings – Rita Mills
- ◆ At the golf course, a Black Duck with eight new chicks, Black-tailed Native Hens and Little Grebes, and Reed Warblers calling near home – George Broadway
- ◆ Honeyeaters chasing a White winged Triller, Speckled Warblers building a nest in the driveway, Yellow-tufted Honeyeater, Scrubwrens and Blue Wrens. White Sun-orchids – Denis Hurley
- ◆ Goldfinch seen, and Pardalotes nesting under the roof – Natalie de Maccus
- ◆ White-necked Heron in Happy Valley 18th and 19th November, Musk Lorikeets in the Murphy st. trees, and at Troll Corner, Red-browed Finches with three chicks and a Grey Shrike-thrush feeding a chick – Noel Young

<p>Disclaimer: The opinions expressed in this newsletter are those of the contributors and not necessarily those of the club</p>

Castlemaine Field Naturalists Programme

December 2009

Sat Dec 5: Annual bird count: meet at 8.15am at the Duke st. car park

Fri Dec 11th meeting: Members night - Members' "show and tell". Share a few photos, a nature experience, a poem – be as creative as you like. Slide and digital projectors available for use (Powerpoint or jpegs on either CD or USB key) UCA hall 8pm. Bring a plate or supper to share.

Sat Dec 12th Christmas outing: Location to be advised

Sat Jan 16th 2010 - Dawn Breakfast at Warburton Bridge

Fri Feb 12th meeting: Annual General Meeting

VISITORS ARE WELCOME AT CLUB ACTIVITIES

General meetings - (second Friday of each month, except January) are held in the Uniting Church (UCA) Hall (enter from Lyttleton St.) at 8.00 pm.

Field Trips - (Saturday following the general meeting) leave from the car park opposite Castle Motel, Duke Street at 1.30pm sharp unless stated otherwise. BYO morning and/or afternoon tea. Outdoor excursions are likely to be cancelled in extreme weather conditions. There are NO excursions on total fire ban days.

Business meetings - fourth Thursday of each month, except December, at Natalies; 65 Johnstone Street, at 7.30 pm. All members are invited to attend.

Subscriptions for 2009

Ordinary membership: Single \$27, Family \$35

Pensioner or student: Single \$24, Family \$29

Subscription includes postage of the monthly newsletter, Castlemaine Naturalist

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